

Application Number 10/691,249

Responsive to Office Action mailed May 2, 2005

REMARKS

This Amendment is responsive to the Office Action dated May 2, 2005. Claims 1-27 are pending in the application. In this response, claim 27 has been amended for reasons unrelated to patentability.

In view of the following remarks, Applicants respectfully request reconsideration of the objections and rejections raised by the Examiner in the Office Action dated May 2, 2005, and allowance of the claims as currently amended.

Claim Rejection Under 35 U.S.C. § 112

In the Office Action, the Examiner rejected claims 2-10, 17-24 and 27 under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Applicants have amended claim 27 for purposes of clarification. Applicants submit that the claims, as amended, particularly point out and distinctly claim the subject matter, as required by 35 U.S.C. 112, second paragraph.

Applicants respectfully traverse the rejection of claims 2-10 and 17-24 under 35 U.S.C. 112, second paragraph.

With respect to claim 2, Applicants assert that the limitation "wherein T_g of the composite front side is greater than about 80°C" is clear and unambiguous notwithstanding the Examiner's assertion to the contrary. "Composite" is synonymous with "combined." As recited in claim 1 from which claim 2 and all other claims depends, the front side comprises "at least one lower support layer formed over the front side and at least one magnetic upper layer formed over said at least one lower layer . . ." The composite T_g is thus the combined T_g exhibited by the combined layers comprising the front side. As known to those skilled in the art, this composite T_g may be measured (e.g. by differential scanning calorimetry). The limitation in claim 2 that the T_g of the composite (combined) front side is greater than about 80°C thus clearly does not describe the T_g of just the magnetic layer, an average of any magnetic layer, or even an average of all layers on the front side as asserted by the Examiner.

"The test for definiteness is whether one skilled in the art would understand the bounds of the claim when read in light of the specification . . . If the claims read in light of the specification reasonably apprise those skilled in the art of the scope of the invention, section 112

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demands no more.”¹ Claim 2 is not indefinite when read by one skilled in the art in light of the specification. Withdrawal of the rejection of claim 2 under 35 U.S.C. 112, second paragraph is therefore respectfully requested.

With respect to claims 3-5, 7, 9, 17-21, 23-24, and dependent claims 6, 8, 10 and 22 that depend upon these claims, Applicants respectfully traverse the rejection of the claims under 35 U.S.C. 112, second paragraph.

Applicants assert that the terms “hard” and “soft” are qualitative terms that properly establish the relative hardness of two resins in a layer. Applicants respectfully remind the Examiner “technical terms are not *per se* indefinite when expressed in qualitative terms without numerical limitation.”² Furthermore, in one preferred embodiment, the relative hardness or softness of two resins in the support layer is further defined in terms of the respective glass transition temperatures of the resins. For this preferred embodiment, the specification at page 6, paragraph 4, states: “The soft resin has a T_g of less than about 60°C, preferably less than about 50°C. The hard resin has a T_g of at least about 70°C, preferably at least about 80°C.” Applicants respectfully assert that these statements do in fact define “soft” and “hard” in terms of the glass transition temperatures exhibited by the respective resins for this preferred embodiment. “[I]t is a well-established axiom in patent law that a patentee is free to be his own lexicographer and to give terms uncommon meanings, he must set out his uncommon definition in some manner within the patent disclosure.”³

Claims 3-5, 7, 9, 17-21 and 23-24 are therefore not indefinite when read by one skilled in the art in light of the specification. Claims 6, 8, 10 and 22 depend upon the claims rejected under 35 U.S.C. section 112, second paragraph. Withdrawal of the rejection of claims 3-5, 7, 9, 17-21 and 23-24 under 35 U.S.C. 112, second paragraph is therefore respectfully requested.

As noted above, claim 27 has been amended to remove the reference to “carbon black” for clarity purposes. In this regard, Applicants respectfully direct the Examiner’s attention to the fact that claim 26 contains a limitation to “a carbon black pigment,” of which the “carbon black”

¹ *Miles Laboratories, Inc. v. Shandon, Inc.*, 27 USPQ2d 1123 (Fed. Cir. 1993), *cert denied*, 510 U.S. 1100 (1994).

² *Modine Mfg. Co. v. U.S. Int’l. Trade Comm’n.*, 37 USPQ2d 1609 (Fed. Cir. 1996) *cert. denied*, 116 S.Ct. 2523 (1996).

³ *Hormone Research Foundation, Inc. v. Genentech, Inc.*, 15 USPQ2d 1039 (Fed. Cir. 1990).

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of original claim 27 is only one type of pigment. Withdrawal of the rejection of claim 27 under 35 U.S.C. 112, second paragraph is therefore respectfully requested.

Claim Rejection Under 35 U.S.C. § 103

In the Office Action, the Examiner rejected claims 1, 3, 5-7, 9-17 and 19-26 under 35 U.S.C. 103(a) as being unpatentable over Kubota et al. (US 6,037,037) (hereafter Kubota).

Applicants respectfully traverse the rejection. The applied reference fails to disclose or suggest the inventions defined by Applicant's claims, and provides no teaching that would have suggested the desirability of modification to arrive at the claimed invention.

Claim 1 recites "a non-magnetic substrate having a front side and a back side, at least one lower support layer formed over the front side and at least one magnetic upper layer formed over said at least one lower layer, said magnetic upper layer comprising magnetic pigment particles having an average length less than about 75 nanometers, and a binder system therefore, said lower support layer comprising at least one non-magnetic pigment and a binder system therefore . . ." With reference to Applicants' independent claim 1, Kubota teaches that the non-magnetic layer comprises a non-magnetic needle body having an average major axis length of 0.25 to 1.0 micron, and an average minor axis length of 0.005 to 0.015 micron (see Column 2, lines 31-34). The non-magnetic needle bodies of Kubota's non-magnetic layer are therefore acicular particulates with aspect ratios of about 17-200.

Kubota further teaches that the non-magnetic needle bodies are preferably goethite particles. In particular, at column 4, lines 22-29, Kubota states: "The needle goethite particles comprise iron hydroxide and have a larger needle ratio (major axis length/minor axis length) and a larger specific surface area than iron oxide" (emphasis added). Kubota further states that this acicular aspect ratio of the non-magnetic needle body yields "a preferably viscosity," and "suppresses turbulence at the interface between the non-magnetic layer and the magnetic layer, thus preventing deterioration of the electromagnetic conversion property." (Kubota column 2, lines 54-59.)

Kubota goes on to teach that because ". . . the average major axis length of the non-magnetic needle body is 0.015 micron or less, the needle bodies are generally not oriented in the direction perpendicular to the film, thus improving the surface property of the magnetic recording

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medium.” (Kubota column 2, lines 63-67.) “The minor axis length is 0.005 micron or more so as to prevent breakage of needle bodies. Such a shape of the non-magnetic body makes it possible that the particles are dispersed in a paint satisfactorily and oriented in the in-plane direction of the coating film due to the shearing force during coating, thus improving the mechanical strength of the coating film and the smoothness of the surface. Furthermore, the improvement of the strength of the coating film enhances the head-touch property, thus improving the electromagnetic conversion property of the magnetic recording medium.” (Kubota column 3, lines 1-12).

Clearly Kubota teaches that the non-magnetic particles must be acicular “needle bodies” in order to achieve the properties and advantages of the Kubota invention. The non-magnetic particles of the lower or support layer of Applicants’ present invention, however, are not required to be acicular needle bodies, and include “blocky” or non-acicular pigment materials such as iron oxides, titanium dioxide, alumina, tin oxide, titanium carbide, silicon carbide, silicon dioxide, silicon nitride, boron nitride, and the like (see page 5, paragraph 3 of Applicants’ specification). “In a preferred embodiment, the primary lower layer pigment material is a hematite material (alpha-iron oxide)” (page 5, paragraph 4). “In one embodiment, alpha-iron oxides are substantially uniform in size.” Thus, the present invention preferably makes use of one of the non-magnetic pigments (iron oxide) from which Kubota teaches away by reference to preferred goethite (iron hydroxide) particles having a larger specific surface area than iron oxide.

Kubota also teaches a magnetic layer containing a ferromagnetic powder (column 6, lines 40-41) wherein the needle ratio (major axis length/minor axis length) is preferably 5 or more (column 6, lines 65-67) and preferably 5 to 20. As noted by Kubota “[s]uch a needle ratio provides a better orientation property in the magnetic layer and makes it possible to improve the surface property and squareness ratio of the magnetic layer.” Moreover, Kubota’s preferred ferromagnetic powder has a major axis length in the range of 0.05 to 0.2 micron (see column 4, lines 38-41). In contrast, Applicants’ claim 1 recites “a magnetic upper layer comprising magnetic pigment particles having an average length less than about about 75 nanometers...” (i.e., < 0.075 micron; see claim 1 and page 3, first paragraph).

Once again, Kubota teaches away from Applicants’ claim 1, teaching one skilled in the art to use acicular needle-shaped magnetic powders in the magnetic layer having a major axis length

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of greater than 0.05 micron (50 nm) and preferably as large as 0.2 micron (200 nm). This is clearly a teaching extending outside the scope and contrary to the teachings of Applicants' claim 1, which imposes no such limitation on shape of the magnetic particles of the magnetic upper layer.

In addition, Kubota teaches that a fatty acid ester at 2-15 wt % with respect to the first binding resin (of the non-magnetic layer) must be present in order to obtain the enhanced first binder resin flexibility advantages of their invention (see column 3, lines 40-44 and claim 1). In Applicants' claim 24, a fatty ester is an optional ingredient, and when used, is added at much lower concentrations effective as a lubricant (generally from about 1 to about 10 parts by weight, and preferably from about 1 to about 5 parts by weight, based on 100 parts by weight based on the primary lower layer pigment combination) (see claim 24 and pages 7, paragraph 5, page 8, paragraph 1 and claim 24). Claim 24 is thus nonobvious and patentable over Kubota for at least this additional reason.

It is well established that the Examiner bears the burden of establishing a *prima facie* case of obviousness.⁴ In doing so, the Examiner must determine whether the prior art provides a "teaching or suggestion to one of ordinary skill in the art to make the changes that would produce" the claimed invention.⁵ A *prima facie* case of obviousness is established only when this burden is met.

Applicants respectfully assert that the Examiner has failed to meet the burden of establishing a *prima facie* case of obviousness. The Examiner asserted that Applicants' claimed invention is the same as the identical structure of the prior art (Kubota). Applicants respectfully disagree with this assertion. Kubota teaches non-magnetic needle bodies in the support layer and acicular ferromagnetic particles in the magnetic layer. Applicants' claimed invention neither imposes these limitations in the independent claim nor claims these limitations as preferred embodiments in the dependent claims. The Examiner's assertion that Applicants' claimed invention is the identical structure as the prior art is thus without merit, and the rejection of Applicants' claims for obviousness in view of Kubota thus cannot be maintained.

⁴ *In re Oetiker*, 24 USPQ2d 1443, 1445 (Fed. Cir. 1992).

⁵ *In re Chu*, 36 USPQ2d 1089, 1094 (Fed. Cir. 1995).

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In addition, the Examiner failed to explain why one of ordinary skill in the art would have considered it desirable to try non-acicular pigments in the non-magnetic layer in view of Kubota's teachings. In addition, the Examiner has utterly failed to suggest any motivation for one skilled in the art to use magnetic particles in the magnetic layer substantially smaller than the preferred range taught by Kubota.

The Examiner's contention that substitution of equivalents (i.e. resins, magnetic and non-magnetic powders, etc.) requires no express motivation as long as the prior art recognizes the equivalency is an incorrect statement of the law.

As a preliminary matter, Applicants note that *In re Fount* and *In re Siebentritt*, cited by the Examiner, were decided prior to the creation of the Federal Circuit, and carry dubious authoritative weight. The Federal Circuit has held on numerous occasions that motivation to combine references must be found in the prior art. See *Interconnect Planning Corp. v. Feil*, 227 USPQ 543 (CAFC 1985); see also *In re Fine*, 5 USPQ2d 1596, 1598 (CAFC 1988); see also *In re Gorman*, 18 USPQ 2d 1885, 1888 (CAFC 1991); see also *Al-Site Corp. v. VSI International, Inc.*, 50 USPQ2d 1161, 1171 (CAFC 1999). Moreover, notwithstanding the Examiner's citation to *Graver Tank*, even this case stands for the proposition that the teaching or suggestion to make the claimed combination and the reasonable expectation of success must both be found in the prior art, not in the applicant's disclosure.⁶

In addition, the Examiner's contention is based on the factually incorrect premise that the magnetic and non-magnetic powders of Applicants' claim 1 are in fact equivalent of the non-magnetic needle bodies and acicular ferromagnetic pigments taught by Kubota.

As noted above, neither the magnetic nor the non-magnetic pigments of the present invention are equivalent to those recited by Kubota. Kubota fails to teach use of anything other than non-magnetic needle bodies in the non-magnetic layer and acicular ferromagnetic powders in the magnetic layer. The claimed lower layer pigment material and magnetic metal particle pigments of the present invention, which need not be acicular nor have the particle length and aspect ratio required of the Kubota non-magnetic and ferromagnetic pigments, are clearly outside the scope of Kubota's needle bodies and acicular ferromagnetic powders, and are thus not equivalents.

⁶ See *In re Vaack*, 20 USPQ2d 1438 (Fed. Cir. 1991).

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The Examiner has not even provided a reference that substantiates the existence of Applicants' inventive features in other systems at the time of Applicants' filing, much less evidentiary support of motivation to combine this feature into the systems of the applied references. At a bare minimum, Applicants must be afforded an opportunity to rebut any evidence, if such evidence exists. The current evidentiary record, however, does not even provide Applicants with that opportunity.

With respect to dependent claims 3, 5-7, 9-17 and 19-26, a dependent claim cannot be obvious if the independent claim on which it depends is nonobvious.⁷ Because independent claim (1) is nonobvious for at least the foregoing reasons, each of the dependent claims must also be nonobvious. For at least these reasons, the Examiner has failed to establish a prima facie case for non-patentability of Applicants' claims 1, 3, 5-7, 9-17 and 19-26 under 35 U.S.C. 103(a) over Kubota. Withdrawal of this rejection is respectfully requested.

CONCLUSION

All claims in this application are in condition for allowance. Applicants respectfully request reconsideration and prompt allowance of all pending claims. Please charge any additional fees or credit any overpayment to deposit account number 09-0069. The Examiner is invited to telephone the below-signed attorney to discuss this application.

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8/9/05

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⁷ *Hartness International, Inc. v. Simplimatic Engineering Co.*, 2 USPQ2d 1826 (Fed. Cir. 1987).